OIPE
FEB 17 2005
PATENT & TRADEMARK OFFICE

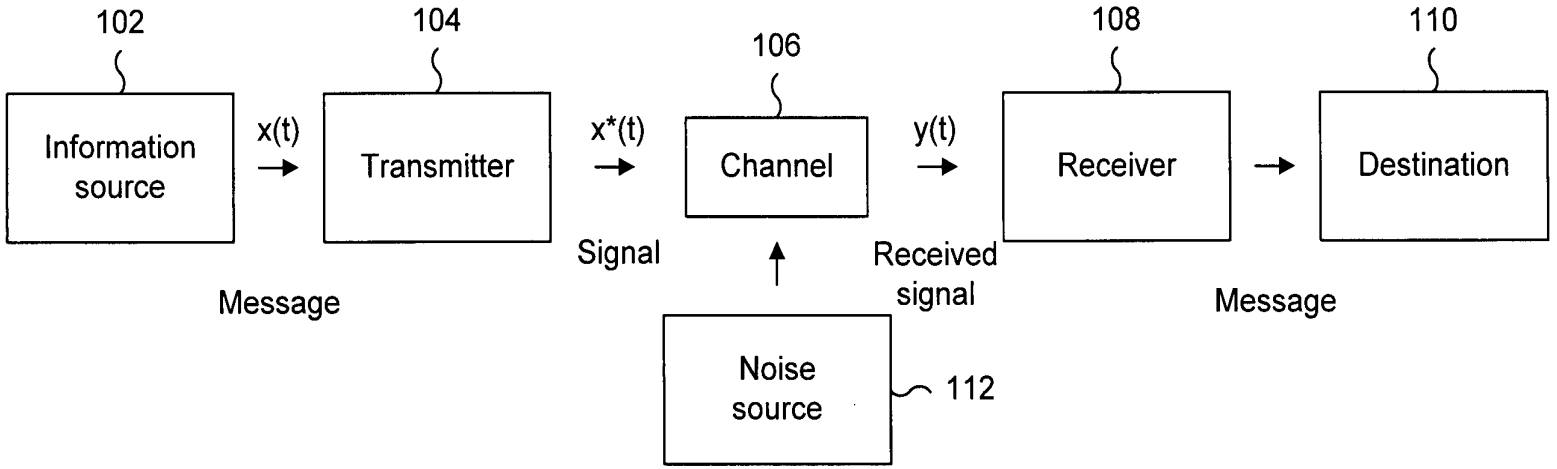

Figure 1A

Prior Art

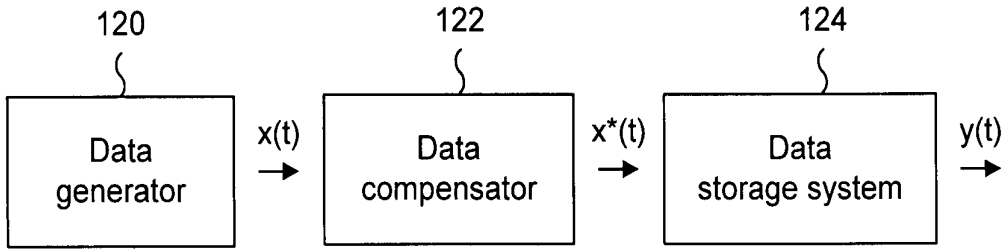

Figure 1B

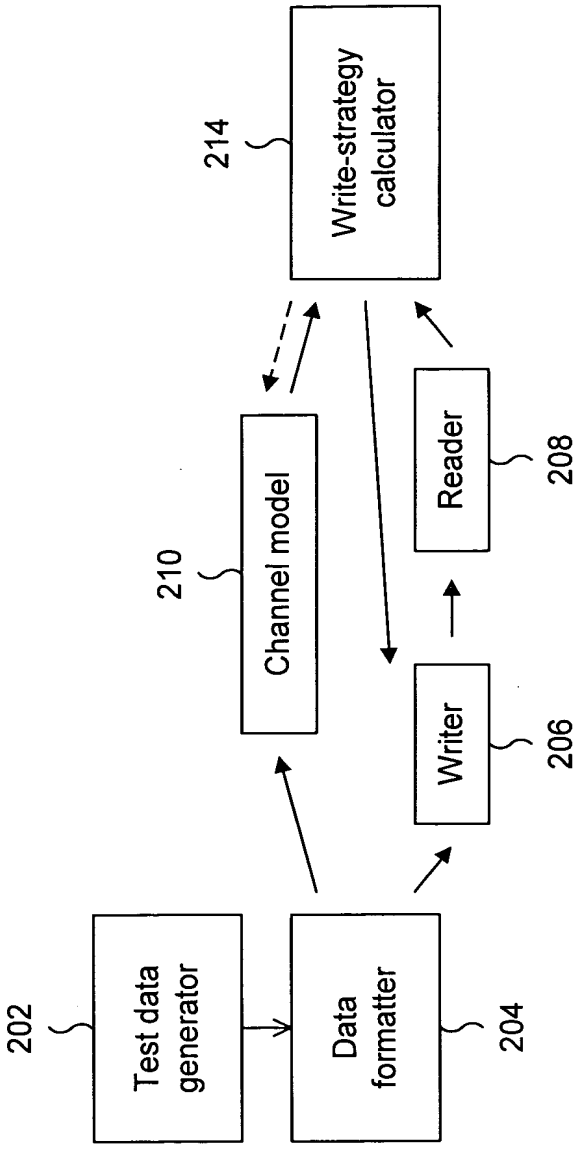

Figure 2
Write compensation system

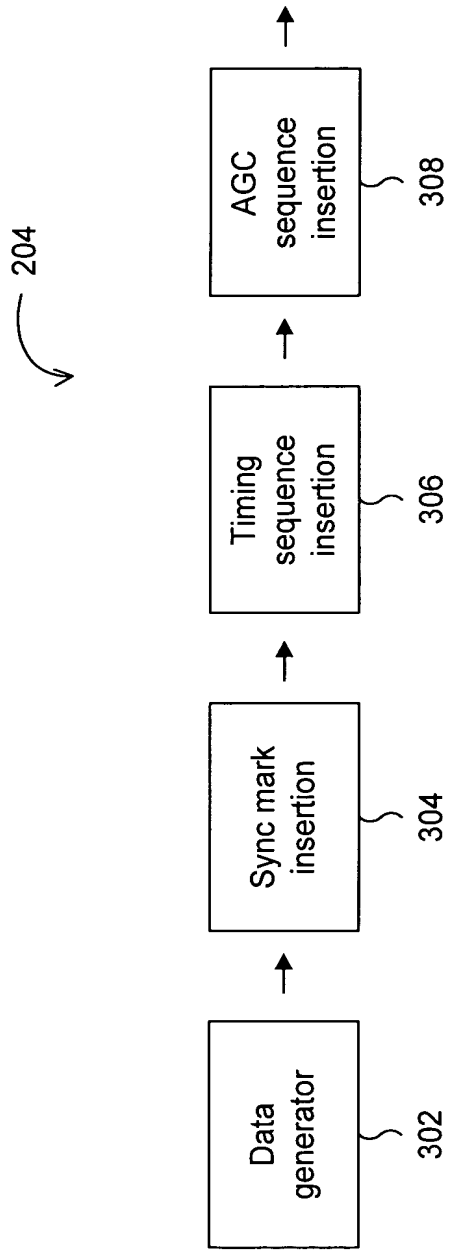

Figure 3
Data formatter

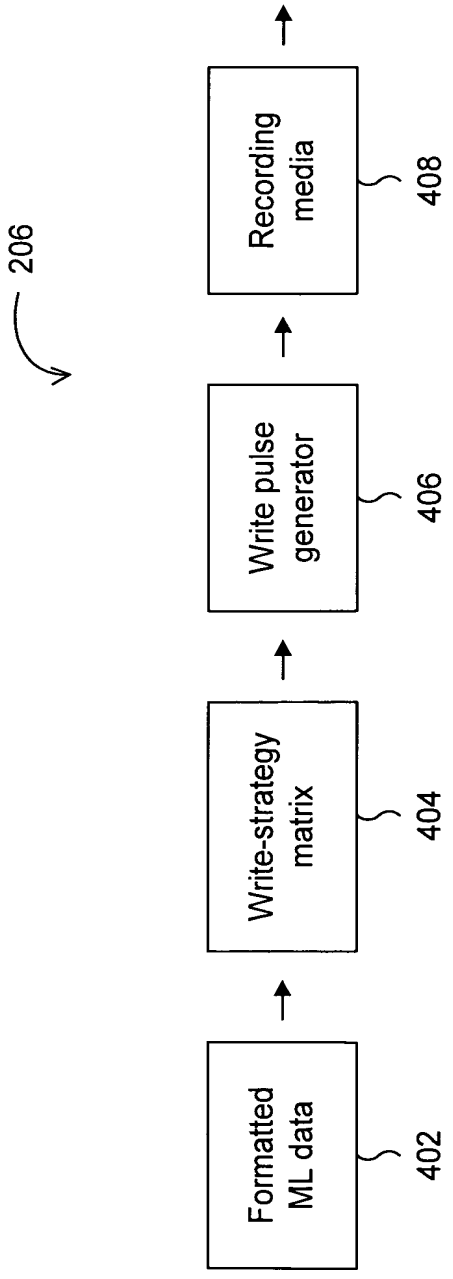

Figure 4A
Data formatter

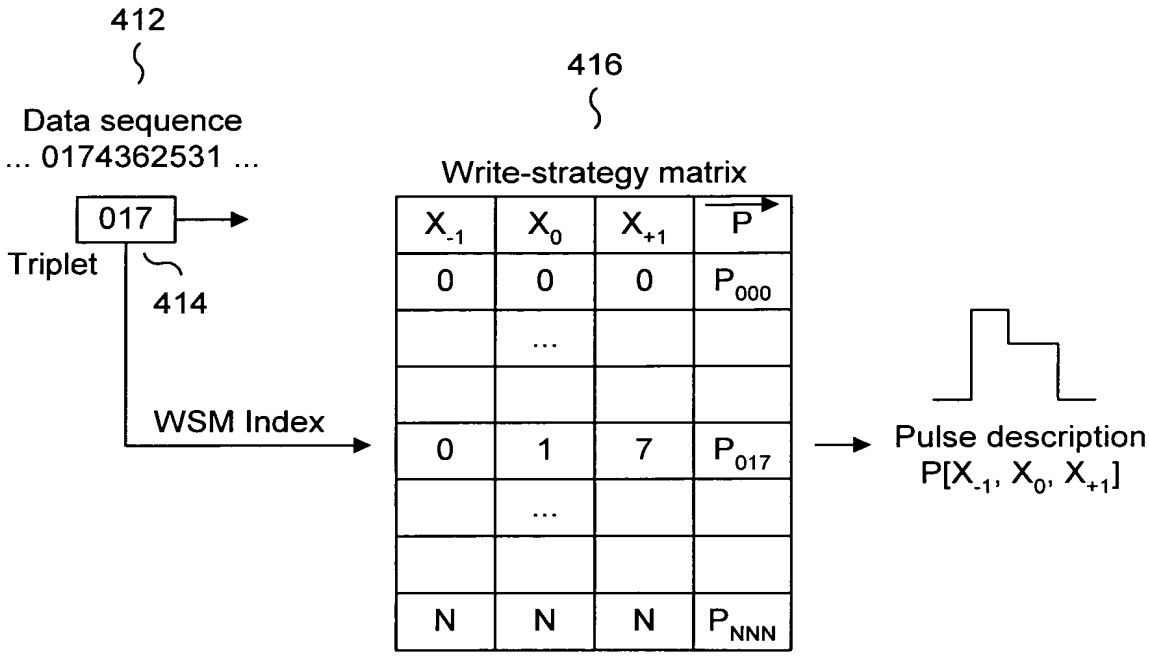
412
Data sequence
... 0174362531 ...
017
Triplet
414
WSM Index
416
Write-strategy matrix
X-1
X0
X+1
P
0
0
0
P000
...
0
1
7
P017
...
N
N
N
PNNN
Pulse description
P[X-1, X0, X+1]

Figure 4B

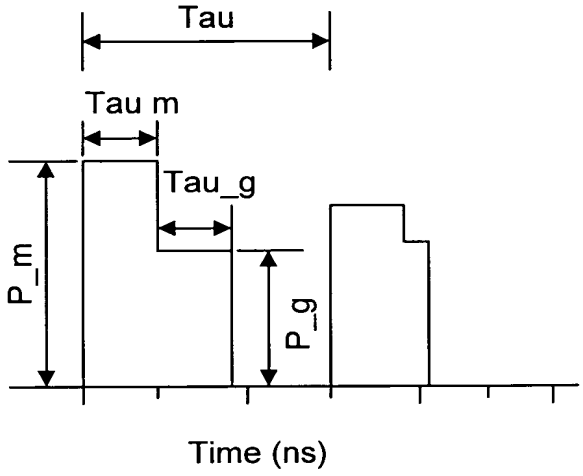

Figure 4C

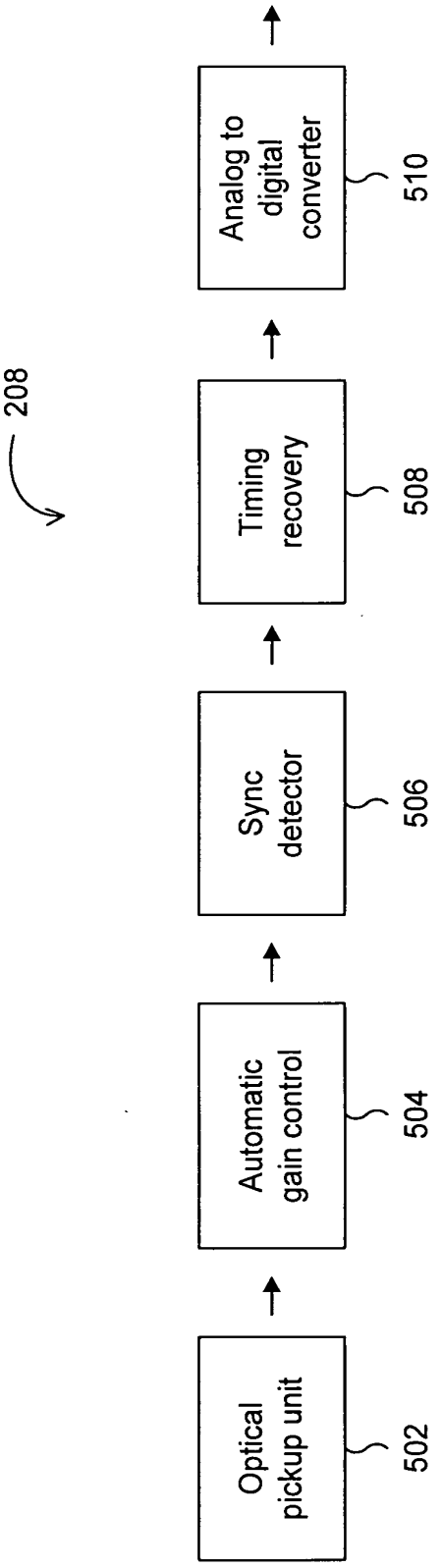
208
Optical pickup unit
502
Automatic gain control
504
Sync detector
506
Timing recovery
508
Analog to digital converter
510

Figure 5

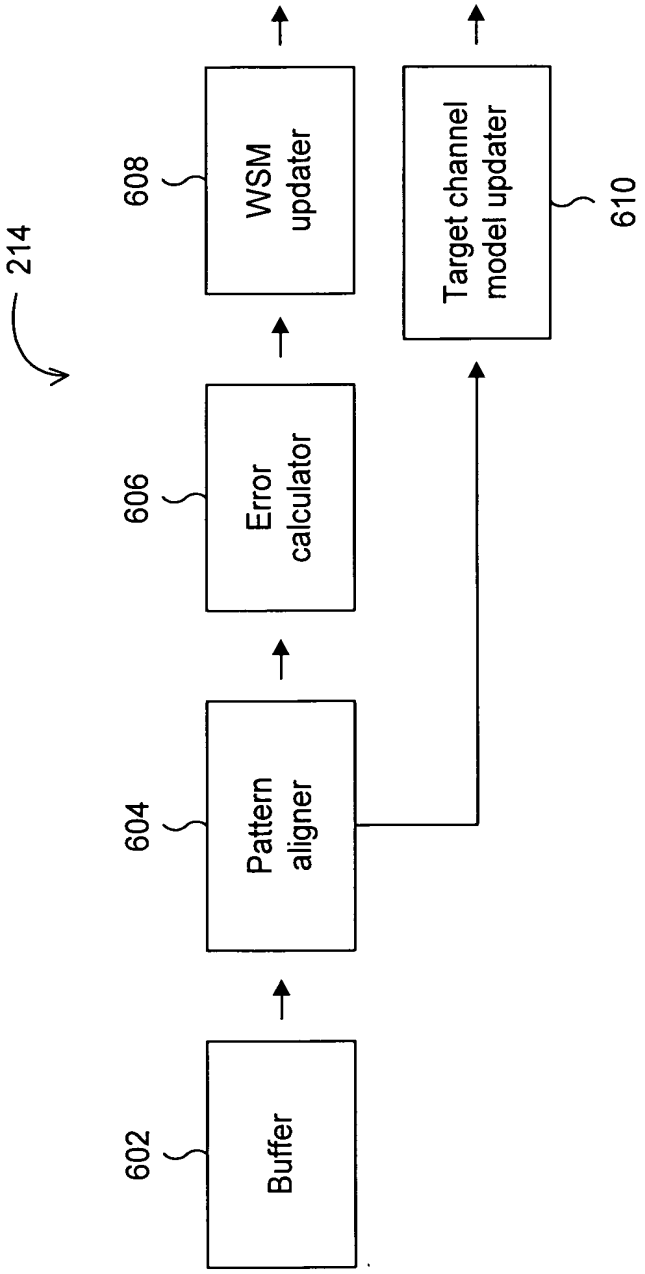

Figure 6A

Write-strategy calculator

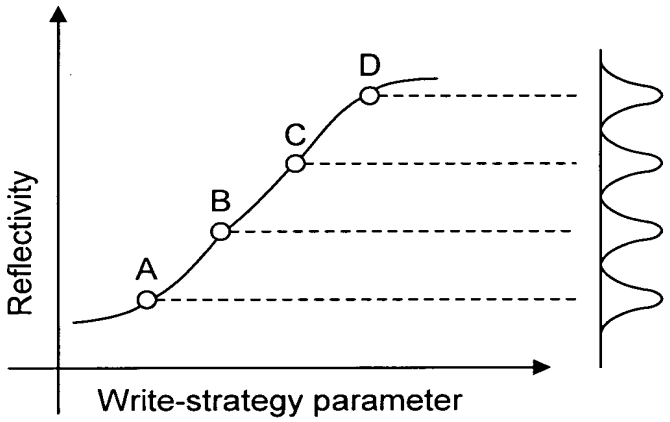

Figure 6B

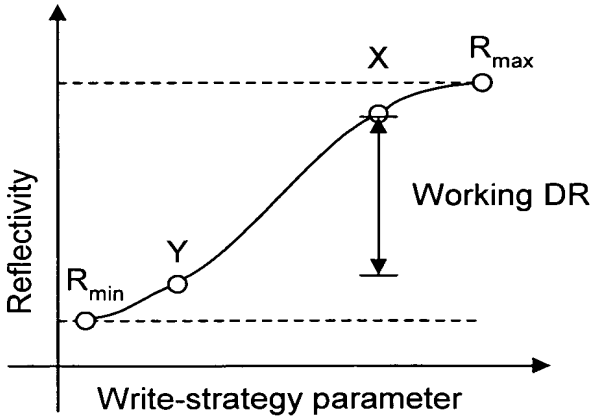

Figure 6C

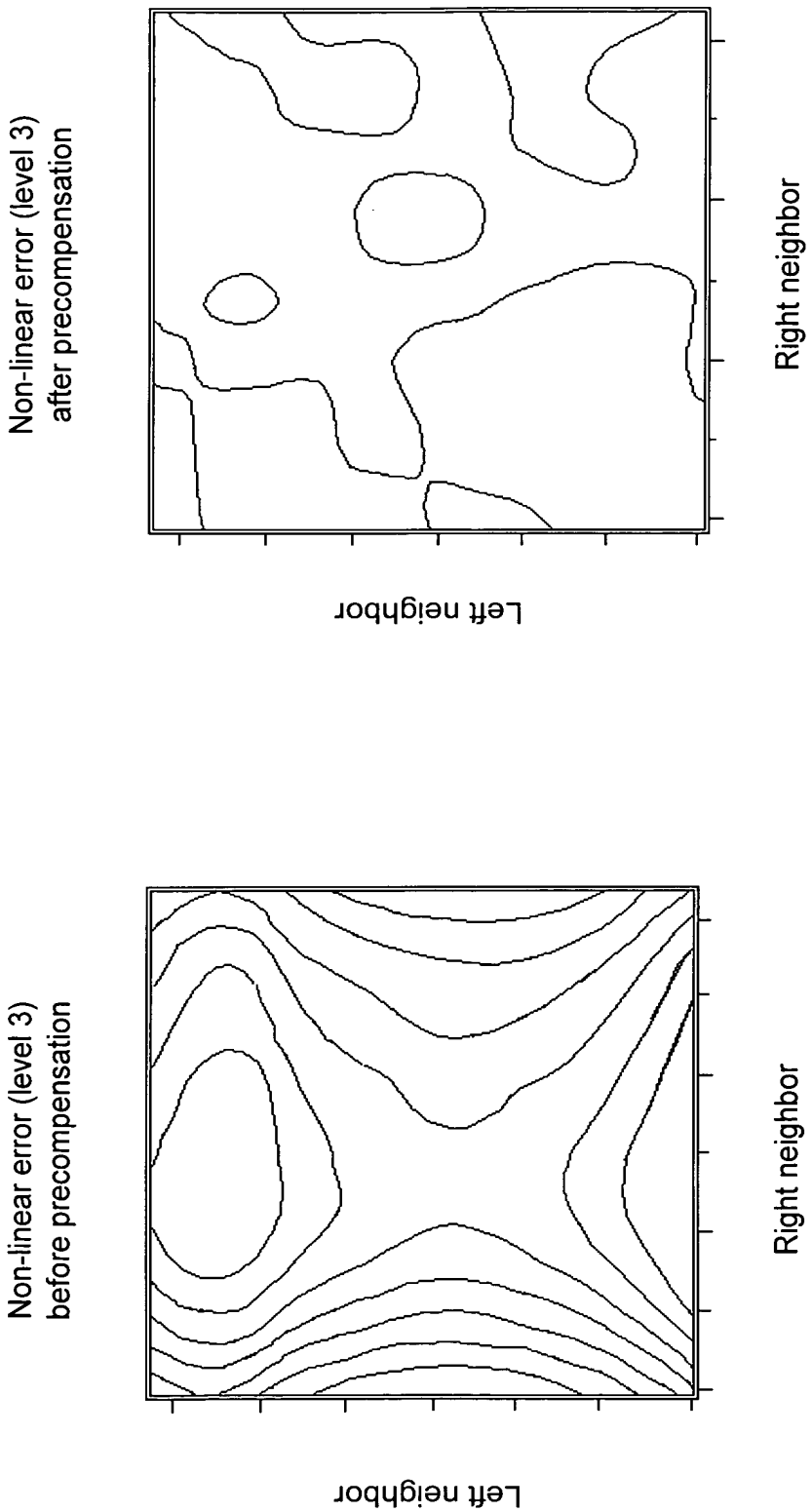
Non-linear error (level 3)
after precompensation
Left neighbor
Right neighbor
Non-linear error (level 3)
before precompensation
Left neighbor
Right neighbor

Figure 6D

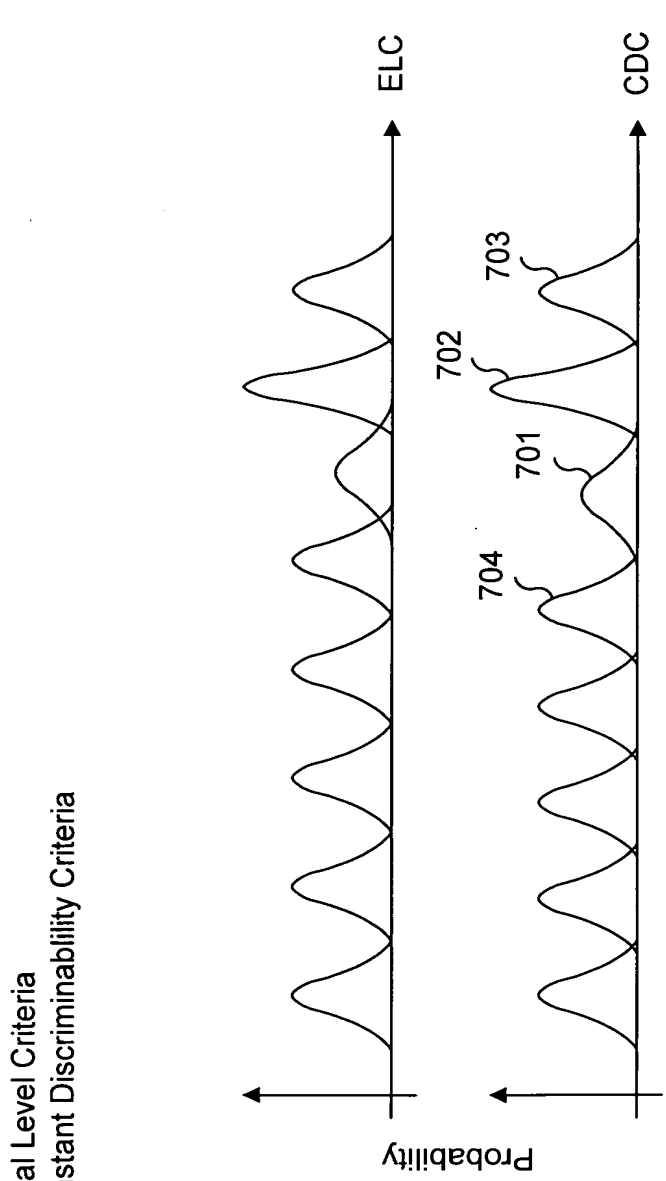
Level placement criteria
ELC = Equal Level Criteria
CDC = Constant Discriminablility Criteria
ELC
CDC
Probability
702
703
701
704

Figure 7

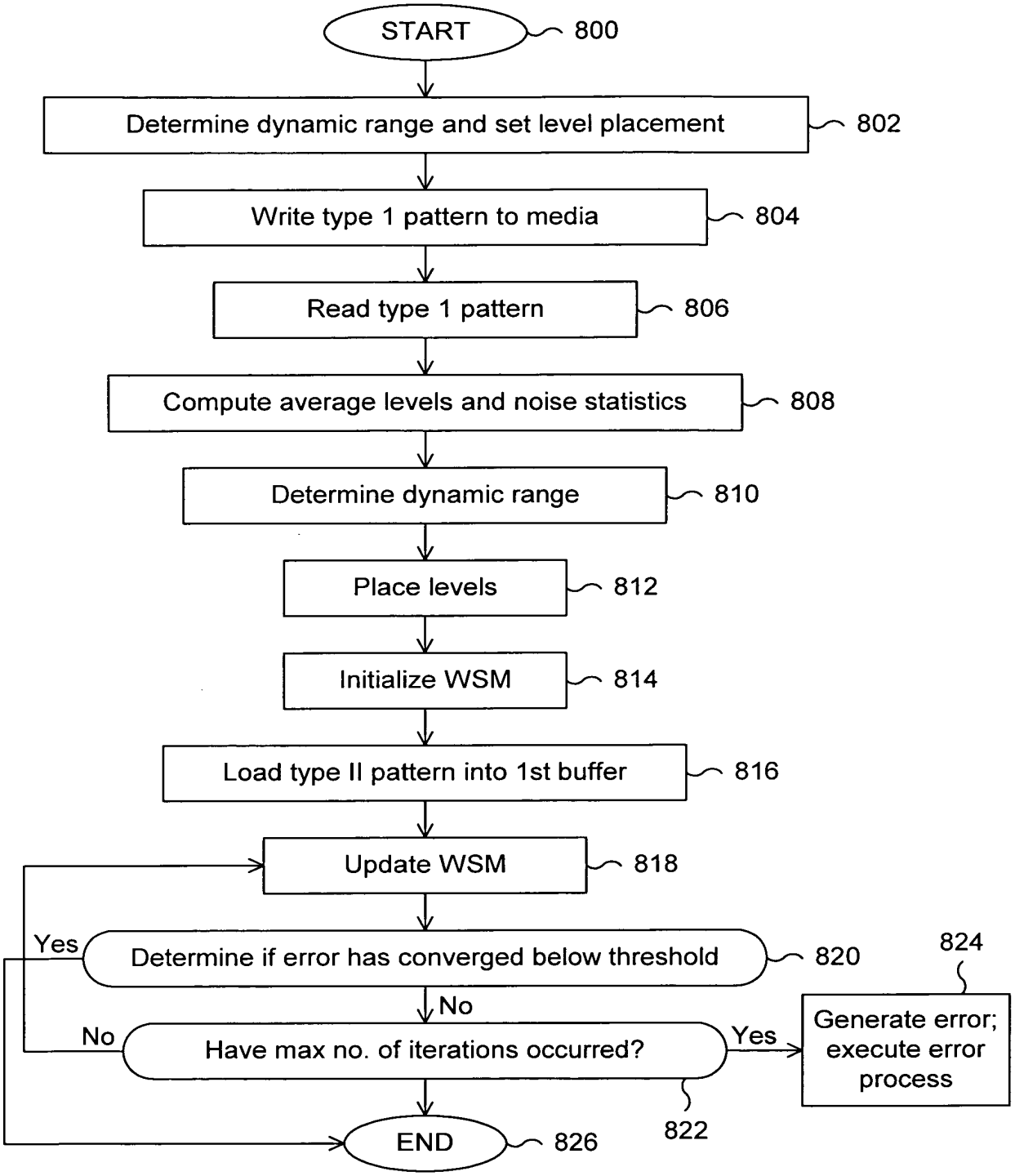
START
800
Determine dynamic range and set level placement
802
Write type 1 pattern to media
804
Read type 1 pattern
806
Compute average levels and noise statistics
808
Determine dynamic range
810
Place levels
812
Initialize WSM
814
Load type II pattern into 1st buffer
816
Update WSM
818
Yes
Determine if error has converged below threshold
820
824
No
No
Have max no. of iterations occurred?
Yes
Generate error; execute error process
822
END
826

Figure 8A

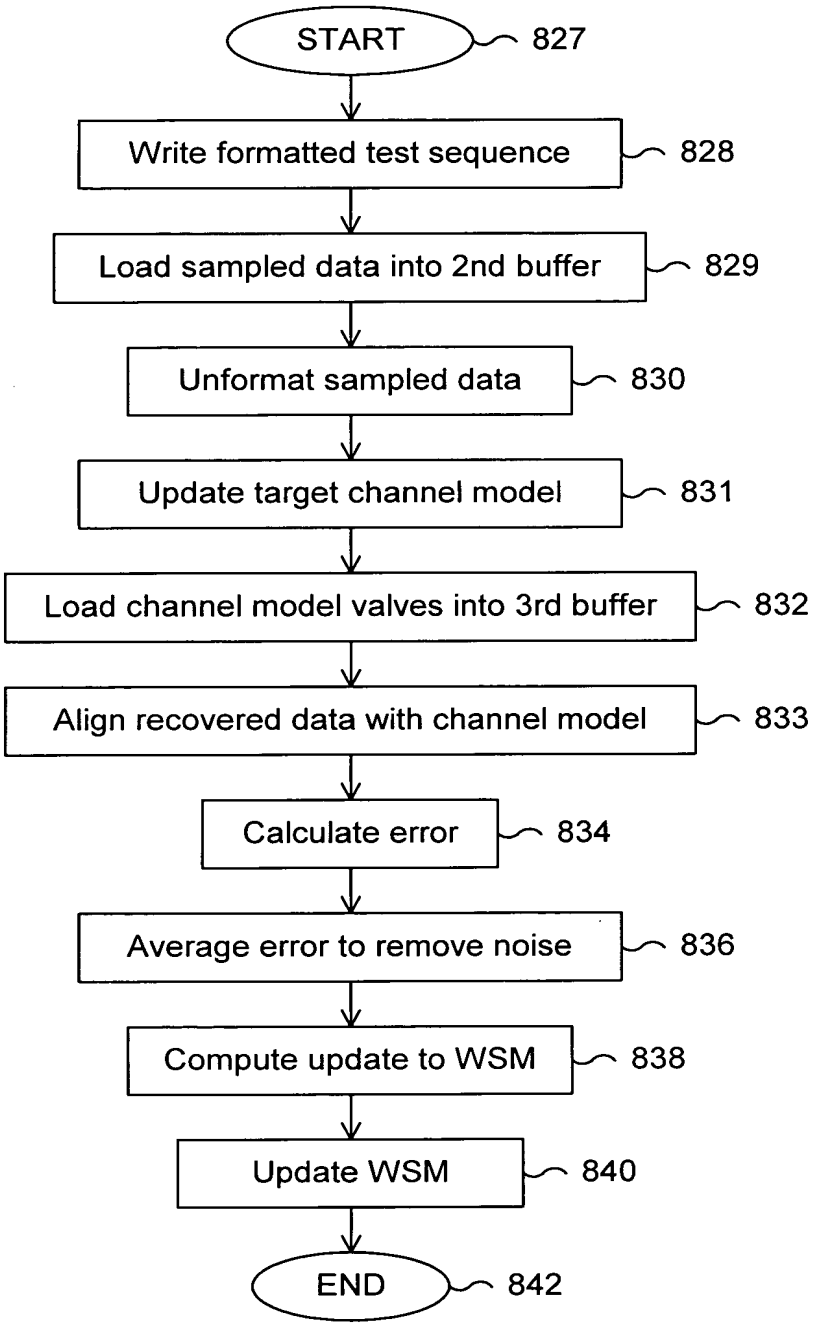
START
827
Write formatted test sequence
828
Load sampled data into 2nd buffer
829
Unformat sampled data
830
Update target channel model
831
Load channel model valves into 3rd buffer
832
Align recovered data with channel model
833
Calculate error
834
Average error to remove noise
836
Compute update to WSM
838
Update WSM
840
END
842

Figure 8B